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mounds in Ohio. He closes with a chapter on the "Parallelism as to the Antiquity of man on the two Hemispheres." The remaining articles are "Descriptions of certain Stone and Copper Implements used by the Mound Builders," by J. W. Foster, LL.D. "List of the Birds of Alaska, with Biographical Notes," by W. H. Dall and H. M. Bannister. "On Additions to the Bird Fauna of North America, made by the Scientific Corps of the Russo-American Telegraph Expedition," by S. F. Baird, and "A preliminary List of the Butterflies of Iowa," by S. H. Scudder.

GEOLOGY OF THE MISSOURI RIVER VALLEY.*—This is the final report of the interesting series from the able hands of Drs. Meek and Hayden, which have been already published. This Report also includes one made by Dr. Hines on a portion of the route, and another by Professor Newberry, on the Cretaceous and Tertiary plants, already reviewed in the NATURALIST. A careful perusal of the latter, and of Dr. Hayden's chapter on the Physical Geography of the region surveyed would give many of our readers new ideas with regard to their own country. The typographical errors in the work are numerous, since it was printed during the absence of the author, who read no proof of it. The historical introduction reviews the labors of previous explorers, and contains interesting remarks with regard to maps. These are especially opportune as drawing attention to the very fine specimen of map printing which is attached to the present report. The colors are excellent and its size and variety of details gives one a very clear idea of the geological structure of the Great Missouri Valley.

The chapter on physical geography contains a resumé of the results of the barometrical profiles run by the different western government expeditions, showing the general rise of the country west of St. Louis, to the base of the Rocky Mountains. Dr. Hayden regards the whole country west of the Mississippi as a vast plateau, which was gradually elevated to its present height, the strain bursting the central axis of the plateau and giving birth to the numerous chains or parallel ranges of the Rocky Mountains. Dr. Hayden describes only two types of these mountains, those having a granite nucleus and regular outline, and those composed of erupted rocks, which "are very rugged in their outlines and irregular in their trend." The author regards the Black Hills as an example of the regular type, and describes the stratified rocks as lying against the nucleus, or kernel, of granite without a break or any unconformability on either side of the axis of elevation to the latest period of the Cretaceous formation." From these facts we draw the inference that prior to the elevation of the Black Hills, which must have occurred after the deposition of the Cretaceous rocks, all of these formations presented an unbroken continuity over the whole area occupied by these mountains. This is an

* Geological Report of the Exploration of the Yellowstone and Missouri Rivers, by Dr. F. V. Hayden, assistant under the direction of Captain (now Lieut. Col., and Brevet Brig. General) W. F. Raynolds. 1859-60. Washington, 1869. 8vo, pp. 174.

important conclusion, and we shall hereafter see its application by other ranges, and also to the Rocky Mountain range taken in the aggregate."

From evidence of a similar nature the Laramie Mountains, the Big Horn and Wind River Mountains are shown to have been elevated at some time during the Tertiary period.

"In this connection I have thought it best to remark more systematically in regard to the principal rivers that drain this immense area of country. The Missouri River and its tributaries form one of the largest as well as most important hydrographical basins in America. It drains an area of nearly or quite 1,000,000 square miles. Taking its rise in the loftiest portion of the Rocky Mountains, near latitude 44°, longitude 113°, it flows northward in three principal branches, Madison, Gallatin, and Jefferson forks, to their junction, and then proceeds onward until it emerges from the gate of the mountains, a distance of nearly 200 miles; it then bends to the westward, flowing in this direction to the entrance of White Earth River, a distance of nearly 500 miles; it then gradually bends southward and westward to its junction with the Mississippi, a distance of 1,500 to 2,000 miles. The branches which form the sources of the Missouri rise in the central portions of the Rocky Mountain range, flowing through granitic, basaltic, and the older sedimentary rocks until it emerges from the gate of the mountains, when the triassic and jurassic are shown. The falls of the Missouri, extending for a distance of 20 or 30 miles, cut their way through a great thickness of compact triassic rocks. Below the falls the channel makes its way through the soft yielding clays and sands of the Cretaceous beds for about 250 miles, with the exception of the Judith tertiary basin, which is about 40 miles in length. The Cretaceous beds continue extending nearly to the mouth of Milk River, where the lignite tertiary formations commence. These are also composed of sands, marls and clays, as the character of the valley will show. The river flows through these tertiary rocks to the mouth of Heart River below Fort Union, a distance of nearly 250 miles, where the Cretaceous rocks come to the surface again. These latter rocks extend nearly to Council Bluffs, a distance of over 500 miles. I have estimated the distances in a straight line as nearly as possible. Just above Council Bluffs the coal measure limestones commence, and the valley of the Missouri gradually becomes more restricted, though it is of moderate width even below the mouth of the Kansas.

"The Yellowstone River is by far the largest branch of the Missouri, and for 400 miles from its mouth up it seems to be as large as the Missouri itself from Fort Union to Fort Pierre. It is navigable for large steamers during the spring and early summer for 300 to 400 miles above its junction with the Missouri. This river also takes its rise in the main divide of the Rocky Mountains, near latitude 44 1-2° and longitude 110°, in a lake, as some suppose, called Yellowstone lake, which is about 60 miles long and 10 to 20 wide. Its channel is formed in rocks similar to that of the Missouri, about 400 miles of its course passing through lignite tertiary beds. The character of its valley is very similar to that of the Missouri. Most of the important branches of this river I have alluded to in the preceding portion of this chapter. Tongue and Powder Rivers, which are quite long branches, have their origin in the Big Horn Mountains, their channels cutting through the different rocks that surround the Big Horn range. Tongue River is nearly 150 miles in length, and flows for the most part through the soft yielding rocks of the lignite tertiary. Powder River is from 250 to 300 miles in length, and also flows nearly all its course through the same tertiary beds as Tongue River.

Chapter II. on the "System of Geological Formations in the Northwest." Chapter XII. on Geological Explorations in Kansas, and Chapter XIII. "Tour to the Bad Lands of Dakota," in 1866, will be found of especial value to the student of American Geology.

PETITES NOUVELLES ENTOMOLOGIQUES.*—This entomological newspaper published on the 1st and 18th of each month, contains a résumé of news interesting to entomologists, and will be useful to all who wish to keep themselves informed in current entomological information.

* Subscription (for North America) \$1.20 a year post free. All communications to be addressed to Mr. E. Deyrolle, fils, 19 Rue de la Monnaie, Paris. American subscribers can remit in two or three cent postage stamps.